Response to Public Comments

From June 3, 2005 to August 31, 2005, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("DEP") (together, the "Agencies") solicited public comments on a draft NPDES permit developed pursuant to a permit renewal application from Veryfine Products, Inc. ("Permittee") for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge beverage product effluent, reverse osmosis reject water, and contact and non-contact cooling water from Outfall 001 and storm water from Outfall 002 to Reedy Meadow Brook located in Littleton, Massachusetts.

After a review of the comments received, EPA and DEP have made a final decision to issue this permit authorizing this discharge. The final permit is substantially identical to the draft permit that was available for public comment. However, based on the comments received, EPA improved certain analyses and made certain clarifications in response to comments. These improvements and changes are detailed in this document and reflected in the final permit. A summary of the changes made in the final permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

Copies of the final permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (CIP), Office of Ecosystem Protection, 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1579.

The following changes were made to the final permit:

1. The final permit has included language on Page 7 to require the Storm Water Pollution Prevention Plan (SWPPP) to discuss off-site sources of runoff to the detention pond and the impacts of the permittee's land management activities.

2. Footnote 2 on page 5 of the final permit has changed the storm water sampling requirement.

3. Footnote 9 on Page 4 of the final permit has been changed to allow for some time after the reverse osmosis (RO) cleaning procedure to conduct sampling for two of the quarterly priority pollutant scans.

4. Footnote 6 on Page 3 of the final permit has changed the monitoring frequency for total residual chlorine (TRC) after the first six months to once per month from once per week.

5. The final permit has included a compliance schedule in Part D which lays out several interim measures the permittee must undertake with the final step of achieving the revised final effluent limit for total phosphorus.

6. The final permit has changed the averaging period for the seasonal phosphorus limit from a monthly average to a sixty (60) day rolling average. See footnote 7 on Page 3 of the final permit.

7. The phosphorus limit for the period of November through March will continue to be based on the concentration level of 0.1 mg/l, whereas in the draft it was based on the level of 0.05 mg//l.

8. The final permit has established monthly upstream and downstream monitoring requirements for temperature, as shown on footnote 4 of Page 3.

A) Comments submitted by Veryfine Products, Inc.:

Comment A1: Storm water drainage from certain Town of Littleton roadways in the vicinity of the Facility is collected and managed by the Facility's storm water system, and therefore mingled with Facility storm water drainage within the Facility's existing storm water drainage infrastructure. On the basis of this site-specific set of circumstances, we request that the final permit specifically provide that both (a) the best management practices included in the SWPPP, and (b) the investigation of potential sources of phosphorus into the on-site storm water detention basin, be directed only to storm water discharge from the Facility's existing drainage infrastructure, *i.e.*, storm water discharge that the Facility is directly responsible and over which it has control.

Response A1: We agree that the SWPPP should mainly include discussion of storm water discharges that the permittee has control over. However, to the extent that off-site storm water or other discharges impact the detention pond or eventual Outfall 002 discharge water quality, these sources (i.e. roadway drainage) should be acknowledged. The final permit has included language on Page 7 of the final permit to address this comment.

Comment A2: While the on-site storm water detention basin has a continuous discharge that increases in volume following precipitation events, the precise rate or timing of the change is not readily apparent from the data we record today. Therefore, we request that the sample collection language be modified as follows: Replace the first sentence of Footnote 2 on Page 5 of 9 with "A representative storm event grab sample shall be collected from the discharge within 60 minutes of a rain event that (a) reaches an accumulation of 0.1 inches of rain and (b) begins at least 72 hours after the end of the previous rain event with an accumulation of 0.1 inches or more." We believe that this sample collection procedure will result in a representative storm water sample.

Response A2: We agree with this change in the storm water sampling requirement and have made a language change to reflect this comment on Page 5 of the final permit.

Comment A3: Veryfine is prepared to conduct the one year of quarterly priority pollutant testing proposed in the draft permit; however, we request that EPA remove the requirement that two of the four samples be taken during cleaning of the Facility's planned reverse osmosis ("RO") system. It is our understanding that the purpose of requiring sampling during RO system cleaning is to sample wastewater discharge that includes RO reject water and cleaning solutions associated with maintaining the RO equipment. However, the Facility plans to discharge (a) RO system reject water directly to Outfall 001, and (b) RO system cleaning solutions to the Facility's advanced wastewater treatment plant; therefore, the requirement to perform two samples during cleaning of the RO system is not appropriate.

Response A3: As explained in the fact sheet, we want to determine whether some of the constituents which may be present in the RO reject and cleaning waters are present in the effluent at concentrations which may cause instream water quality violations. Preliminary data show that the RO system concentrates pollutants and it is not clear whether the treatment system can effectively treat for the chemicals which are expected to be used during the RO cleaning procedure. We believe that requiring two (2) samples for the priority pollutant scan to be taken during periods when RO reject water and cleaning waters are being discharged will provide a worst case indication regarding the concentration of such parameters. The EPA understands that it may be difficult to pinpoint exactly when flows from the RO cleaning process and reject water are present in the effluent. Therefore, for those two (2) samples that are required to be taken during period of RO cleaning, the permit has been changed to note that the conducting of these 24 hour composite samples shall begin within one hour after the conclusion of the RO cleaning procedure. See footnote 9 on Page 4 of the final permit.

Comment A4: We request that EPA remove the requirement to measure chlorine residual in the Facility's effluent. For the following reasons, no chlorine residual could reasonably be expected in the effluent: (a) chlorine is removed from the Town water supply prior to RO processing, so is not present in the direct discharge of the RO retentate; (b) the cleaning solutions used for sanitation of production equipment, as well as the cleaning solutions and wash from the RO system, will be directed to the advanced wastewater treatment system and fully reacted prior to discharge; and, (c) disinfection of the Facility's effluent is accomplished with UV light.

Response A4: We need to confirm that the TRC levels in the effluent are not detected or are at very low levels, since there are still sources of residual chlorine at the facility, the chronic and acute water quality criteria are very low and there is very little dilution available to the effluent. We have determined that weekly monitoring to demonstrate this is required and will be maintained. However, this sampling frequency will be required only for the first six (6) months after the effective date of the permit. After this six month period, the TRC shall be monitored once per month for the remainder of the permit. See footnote 6 on Page 3 for this change.

Comment A5: We request that EPA and DEP retain the existing permit limits for phosphorus (*i.e.*, a monthly average limit of 0.46 lbs/day and a maximum daily limit of 1.25 lbs/day) in the final permit. Both the Facility's operations (in terms of its products, production levels and effluent) and the receiving water for the Facility's effluent will undergo significant changes during the five-year term of the final permit. As discussed below, these changes will result from actions and circumstances both within and beyond Veryfine's control, and will significantly impact phosphorus levels in the Facility's wastewater and in the receiving water bodies, *i.e.*, Reedy Meadow Brook/Beaver Brook/Mill Pond. It is not appropriate to set final permit limits that will apply to the Facility's future operations when it is known these changes and impacts will occur during the permit term.

Response A5: As explained in the fact sheet and in responses A7, A10, A12 and A14 below, there is a sufficient basis to impose a more stringent effluent phosphorus limit in this reissued permit. The more stringent limit has been revised to only apply during the period of April 1 to October 31 and this final limit is expressed as a 60 day rolling average. See footnote 7 on Page 3 of the final permit for an explanation of how the 60 day rolling average limit is structured. During the period of November 1 through March 31, the effluent phosphorus limit remains a mass limit based on the concentration of 0.1 mg/l, as in the 2000 permit.

Since meeting these more stringent limits may require engineering study and design of additional or enhanced treatment, the Agencies have provided a compliance schedule for meeting the more stringent effluent phosphorus limit. This schedule of compliance is established in accordance with 40 CFR § 122.47 and is appropriate in this case to allow a reasonable opportunity to attain compliance with the more stringent final phosphorus limit. Proposed actions to be taken by other parties, such as the Army Corps dredging of Mill Pond, are unclear regarding their scope or schedule. Therefore, linking any permit requirements to such actions is not appropriate at this time.

Comment A6: To the extent that EPA and DEP relied on Facility effluent data from October 2002 to October 2004 to predict the ability of the Facility's wastewater treatment system to manage phosphorus in the Facility's effluent and to establish the phosphorus limits contained in the draft permit, such reliance is misplaced. During that two year time period phosphorus concentrations in the effluent were low, and discharge flow was less than half the permitted volume. Recently implemented and planned production changes at the Facility, including operation of the RO system and increased production levels, will significantly increase the phosphorus content of the Facility's wastewater. More specifically, recent testing indicates that the RO reject water that will be added to the Facility's effluent through operation of the planned RO system has the potential to contain up to 1.8 mg/l or more of phosphorus. This, in combination with an effluent discharge flow rate that approaches the permitted flow, could cause routine exceedences of the proposed maximum daily limit of 0.23 lbs/day phosphorus.

Response A6: We realize that there is the potential for a larger phosphorus loading to the facility and this was not reflected in the fact sheet because it used data that was available at that time. In any case, the permittee needs to comply with the more stringent, seasonal phosphorus limit and the fact that there will be an increase in phosphorus loading to the treatment plant does not provide a basis for any relief from this limit.

Comment A7: In addition, we have collected and analyzed several grab samples from the receiving water system during the past two months. The average phosphorus concentrations during that period in Reedy Meadow Brook were 0.18 mg/l upstream of the Veryfine discharge outfall, 0.15 mg/l downstream of the discharge outfall, and 0.12 mg/l in Mill Pond. As a result, we request that the existing permit limits for phosphorus be retained in the final permit until Veryfine evaluates the impacts of changing production on the actual phosphorus concentrations through the Facility's wastewater treatment process. An assessment of these impacts on the receiving water would most appropriately be considered in the Total Maximum Daily Load ("TMDL") that DEP is required by law to prepare for the Reedy Meadow Brook/Beaver Brook/Mill Pond.

Response A7: Since there are already high levels phosphorus upstream of the Veryfine discharge and Veryfine will add more phosphorus to Reedy Meadow Brook, this would likely contribute to the existing water quality impairment. We agree that multiple sources of phosphorus would need to be considered in any future TMDL process, but such process has not been undertaken at this time.

Comment A8: The Town of Littleton Water Department has informed Veryfine that it plans to add a phosphate-based chemical to the Town's potable water to improve corrosion control in order to comply with the applicable Massachusetts Drinking Water Standards and Guidelines for lead and copper. Addition of this new chemical may significantly increase the phosphorus load to the Facility and result in a higher than previously projected phosphorus content in the Facility's RO reject water. Preliminary testing of the Town Water supply as received at the Veryfine Facility indicates a current concentration of 0.33 mg/l phosphorus. As a result, we request that the existing permit limits for phosphorus be retained in the final permit until Veryfine evaluates the impacts of this change by the Town to the Facility's water supply on the phosphorus concentrations through the Facility's treatment process. As noted above, an assessment of these impacts on the receiving water would most appropriately be considered in the TMDL for the Reedy Meadow Brook/Beaver Brook/Mill Pond system.

Response A8: We believe that the compliance schedule in Part D of the final permit provides an appropriate period of time to study the impact of the Town's addition of any treatment chemicals for its drinking water.

Comment A9: At the request of the Town of Littleton, the United States Army Corps of Engineers (the "Corps") is conducting a study of Mill Pond and its tributaries. The major feature of the restoration study is to address ways to remove and dispose of accumulated sediment from the pond *to reduce the recycling of phosphorous* and to increase the depth of the water" (emphasis added). The goal of this study is the selection of a cost effective pond-dredging option for Mill Pond. In our opinion, the planned dredging of sediments from Mill Pond will cause a major upheaval of the nutrient balance within the Pond, and will negate any minor reduction in phosphorus that may be achieved by the Facility. As a result, we request that the existing permit limits for phosphorus be retained in the final permit until the planned dredging project is complete, the nutrient balance is stabilized, and the Corps has had sufficient time to collect the data necessary to fully evaluate the effects of the dredging project.

Response A9: As explained in the Response to Comment A8 above, the compliance schedule in the final permit allows time for this dredging project to proceed and for additional time to study how this work will affect the receiving stream. It is not clear at this time how this project will affect the "nutrient balance within Mill Pond." In any case, we would not expect this project to immediately result in compliance with water quality standards for Reedy Meadow Brook and Mill Pond. If this dredging is successful, one of its benefits should be a diminished release of nutrients to the watershed over the long term. Any instream phosphorus reduction from any dredging will assure that WQS are met downstream. The final phosphorus limit is based on near-field mixing and does not account for sediment recycling.

Comment A10: The draft permit significantly reduces the basis for determining the phosphorus mass loading limit for the Facility from 0.1 milligrams per liter ("mg/l") to 0.05 mg/l (on a concentration basis). According to Dufresne-Henry, the Facility's wastewater treatment plant's design basis is 0.1 mg/l of phosphorus. As a result, according to Dufresne-Henry, the Facility's current treatment system and chemical protocol, which are considered best available technology for phosphorus removal, cannot consistently achieve an effluent discharge with a phosphorus concentration of 0.05 mg/l or less (*i.e.*, one-half the current design basis).

Response A10: The revised effluent phosphorus limit is a water quality based limit. There is no BAT established for phosphorus removal. Since the more stringent final permit limit for phosphorus is a water quality-based limit, it cannot be revised based on operational data. A water quality-based limit can be revised if new water quality information supports a different limit or if a Use Attainability Analysis ("**UAA**") justifies a downgrading of the use classification of the receiving stream. The final permit includes a compliance schedule with ample time to assess influent phosphorus levels and current effectiveness of the facility's treatment system. There is additional time to design and construct additional or enhanced treatment to meet the final phosphorus limit, if necessary. Alternatively, the permittee may explore other methods to comply with the

final permit limit, such as using an alternative source water and/or alternative disposal (i.e. groundwater discharge, discharge to POTW).

Comment A11: The Facility has worked to reduce the use of phosphorus-based cleaning compounds in its manufacturing operations. As a result, we have reduced the phosphorus concentration currently entering the Facility's treatment plant to the minimum concentration necessary to sustain the biological organisms used in the wastewater treatment process. Any further reduction in the amount of phosphorus in the treatment plant influent would negatively impact the biological organisms, and compromise the effectiveness of the treatment that the treatment plant is designed to provide.

Response A11: We commend the facility on its phosphorus source reduction efforts. However, we believe that the permittee may need to make adjustments to its treatment plant where necessary to meet the more stringent effluent limit for phosphorus or seek other methods of compliance. We would suggest that the permittee research whether nutrients or compounds other than phosphorus may be used for the organisms in the treatment system and/or to consider additional or enhanced treatment for phosphorus removal.

Comment A12: Studies show that non-point sources of phosphorus significantly impact a water body. Here, the federal and local governments already have recognized that nonpoint sources of phosphorus are having a significant adverse impact on Mill Pond and its tributaries. Non-point sources of phosphorus for the Reedy Meadow Brook/Beaver Brook/Mill Pond system include existing sediment reflux; decomposition of organic material from the adjacent swamp areas; run-off from lawns, fields and farm land; and roadway storm drainage. The current level of phosphorus discharged from the Facility is very low, and that any further reduction, in order to have any measurable impact, must be part of an overall phosphorus reduction plan that addresses all sources of phosphorus to the watershed. Therefore, we request that EPA and DEP consider the impacts of these non-point sources of phosphorus to the Reedy Meadow Brook/Beaver Brook/Mill Pond system in the required TMDL (discussed below), and that any new phosphorus mass loading limit established by permit for Veryfine be developed as part of an overall plan to control all sources of phosphorus discharged to these water bodies.

Response A12: In addition to technology-based controls, permits must contain any more stringent limitations for particular pollutants that are necessary to meet Massachusetts Surface Water Quality Standards (MASWQS). Water quality-based effluent limitations must be calculated at levels which ensure achievement of MASWQS, regardless of the availability or effectiveness of technologies or the costs dischargers would incur to meet those limits. A water quality-based effluent limitation for a pollutant also must be consistent with any available waste load allocation approved by EPA in connection with a TMDL for that pollutant and receiving water. 40 C.F.R. § 122.44(d)(1)(vii)(B).

The receiving water, Reedy Meadow Brook, is on the State's list of impaired waterbodies requiring water quality improvement, known as the Section 303(d) list. Specifically, Reedy Meadow Brook, designated as a Class B waterbody, has been observed to frequently fail to meet applicable numerical MASWQS for dissolved oxygen concentration, fecal coliform bacteria counts, and pH. As mentioned in the fact sheet, Mill Pond, to which Reedy Meadow Brook discharges a short distance from the permittee's site, is characterized as a hypereutrophic waterbody. See also the responses to Comments A7 and A9.

Comment A13: Based on the requirements of the CWA, EPA and DEP must conduct the necessary site-specific water quality studies and develop (DEP) and approve (EPA) a TMDL to document the need for the extremely low phosphorus limits included in the draft Veryfine permit, especially because these limits cannot be achieved with current best available treatment technology. DEP has included Reedy Meadow Brook in its draft 2004 303(d) list as a water body impaired by nutrients, but no site-specific water quality studies have been completed and no TMDL has been developed for that impairment, and it does not appear that the development of such a TMDL is imminent. The DEP has developed a phosphorus TMDL for the Assabet River with the result that the municipal treatment plants on the Assabet River now have seasonal phosphorus limits that are much less stringent than the limits currently proposed for Veryfine (and a compliance schedule to meet them), and are being allowed to consider alternative means of reducing the phosphorus loading to that river (namely, sediment dredging, as the Corps is proposing to do for Mill Pond). As a result, we request that the existing permit limits for phosphorus be retained in the final permit until such time that (i) site-specific studies are completed to identify and account for the phosphorus load allocations from the non-point sources of phosphorus loading to the Reedy Meadow Brook/Beaver Brook/Mill Pond system, from natural background conditions, and from any other point sources to the system, and (ii) a TMDL is prepared that properly and fairly accounts for all of these phosphorus sources.

Response A13: See the Response to A10, which reiterates that the revised phosphorus limit is based on water quality, not on technology, and in any case, there is no BAT established for phosphorus removal. As noted in the Response to A7, a TMDL for this waterbody has not yet been undertaken. The Assabet River permits that are cited by the permittee established additional, but not alternative, phosphorus reduction measures. These measures are in the form of sediment removal and were required by the TMDL. The more stringent monthly average limit for phosphorus has been based on EPA's interpretation of narrative water quality criteria for this waterbody.

Comment A14: The proposed phosphorus limits lack a proper legal basis because EPA and DEP have not complied with the federal NPDES regulations and the Massachusetts Water Quality Standards ("WQS") in establishing them. The NPDES regulations require NPDES permits to contain the discharge limits necessary to control pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State

narrative criteria for water quality." 40 C.F.R. §122.44(d)(1)(i). The Massachusetts WQS in turn contain two provisions relating to the control of phosphorus discharges. The first provision, 310 CMR 4.04(5), provides that "any existing point source discharge containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the *highest and best practical treatment* to remove such nutrients" (emphasis added). The second provision, 310 CMR 4.05(5)(c), provides that nutrients "shall not exceed the *site-specific limits* necessary to control accelerated or cultural eutrophication (also, see 310 CMR 4.04(5))" (emphasis added).

Response A14: As pointed out in the fact sheet, it has been documented that this receiving water is not meeting its MASWQS for nutrients and EPA has determined that a more stringent effluent phosphorus limit is necessary. The final monthly limit is based on appropriate guidance which recommends an instream phosphorus concentration of 0.05 mg/l for any stream entering a lake or reservoir, which is the case here, as the receiving water discharges to Mill Pond. The phosphorus limits are based on the latter provision cited by the permittee, 310 CMR 4.05(5)(c). This basis was also cited on Page 7 of the fact sheet.

Comment A15: The EPA and DEP explain in the Fact Sheet that they are not applying the "highest and best practical treatment" standard to the Facility's discharge because "more stringent" phosphorus limits are warranted. However, instead of establishing "site-specific limits" – which is the only other means available to them under the MASWQS for setting legally enforceable controls on the amount of phosphorus discharged in the Facility's wastewater– they borrow an "instream target *guidance* level" of 0.05 mg/l phosphorus for streams entering lakes or reservoirs from EPA's 1986 Gold Book, and use this "recommend[ed]" value as the basis for setting the Facility's phosphorus limits. (emphasis added). The Fact Sheet offers as justification the fact that Reedy Meadow Brook is a stream that travels only a short distance before it empties into Mill Pond, which it identifies as a hypereutrophic reservoir. EPA and DEP also decline to apply EPA's more recently developed "Ecoregion Nutrient Criteria," which we believe is appropriate because, as EPA and DEP themselves recently noted in the Fact Sheet for the NPDES permit for the Middlesex School Wastewater Treatment Plant (March 2005), the "Ecoregion guidance criteria" for phosphorus "may be overly conservative."

We do not agree with this assessment for two reasons. First, it is factually inaccurate. Reedy Meadow Brook combines with Beaver Brook, which then discharges to Mill Pond, and it is Mill Pond that has been identified as a hypereutrophic reservoir. Second, we believe that it is inappropriate to base a phosphorus permit limit for the Facility on a guidance document rather than a set of site-specific limits. We do not believe that using a hypothetical, generic value referenced in a 20-year-old guidance document to calculate a generic lbs/day phosphorus limit constitutes the development of a "site-specific" limit as the Massachusetts WQS require. We therefore request that the current basis for determining the phosphorus mass loading limit be held at 0.1 mg/l until EPA and DEP propose a "site-specific" limit based on site-specific data, as required by law.

Response A15: The ecoregion criterion of 24 ug/l would result in an effluent limit roughly one-half of the one that is established in this final permit. We are not using this criteria because the MassDEP has not yet adopted these criteria. In the absence of such criteria or other numeric limit for phosphorus, EPA can establish limits based on published guidance levels, such as those in EPA's Gold Book.

Beaver Brook and Reedy Meadow Brook enter Mill Pond individually at very close proximity. Reedy Meadow Brook does not empty into Beaver Brook before entering Mill Pond, as shown in Figure 1.

Comment A16: We are aware of no other facilities in Massachusetts that have an NPDES permit with a phosphorus limit based on 0.05 mg/l total phosphorus, and request that EPA and DEP provide a list of any such facilities so that Veryfine can investigate what technology is being used and how these entities are meeting this stringent requirement.

Response A16: The permit for Guilford of Maine (now Interface Fabrics) in Douglas, MA (#MA0001538) has a limit of 2.7 pounds per day. The company that operates this facility is now Interface Fabrics. This limit is based on an instream phosphorus concentration of 50 ug/l (based on the same EPA Gold Book guidance level), but the discharge from this facility was only allowed a portion of the load associated with this concentration. The total loading calculated for this stretch of the receiving water was 4.7 pounds per day. After taking out 2.0 pounds per day, which was the estimated instream phosphorus mass loading, this facility was allowed 2.7 pounds per day. This permit was issued on December 14, 1999 and is still in effect.

Comment A17: Dufresne-Henry has informed us that if the final permit contains the more stringent phosphorus limit, our Facility will not be able to comply with that limit on a consistent basis. Accordingly, we would need to evaluate whether modifications could be made to the plant's existing phosphorus removal process to achieve such a low limit on a consistent basis, or whether the installation of brand-new process equipment based on one or more currently emerging phosphorus removal technologies would be required. More particularly, Veryfine would need sufficient time for investigation and pilot testing to determine (i) what adjustments, if any, could be made to the existing treatment equipment and chemical dosages to meet this low limit, (ii) what new or alternative chemicals, if any, are available to enhance phosphorus removal to meet the limit, (iii) whether such adjustments and/or chemical additions would enable the Facility to achieve this low limit on a consistent basis, and, (iv) what adverse environmental impacts would result from the increase in chemical usage that could be required to meet the limit.
In addition, we would need time to evaluate the new phosphorus removal technologies currently under development to achieve very low phosphorus limits on a consistent basis. Design, permitting, construction and startup would follow. Therefore, we request that the existing permit limits for phosphorus be retained in the final permit until new phosphorus removal technology becomes available on more than a bench or pilot scale, and such

technology can be demonstrated to achieve the significantly lower effluent phosphorus concentration of 0.05 mg/l at the Facility on a consistent basis.

Response A17: As noted in Response to A5 above, a compliance schedule has been granted for meeting the revised, seasonal effluent phosphorus limit. In addition, this more stringent limit has been revised to only apply during the period of April 1 to October 31 and this final limit is expressed as a 60 day rolling average. See footnote 7 on Page 3 of the final permit for an explanation of how the 60 day rolling average limit is structured. During the period of November 1 through March 31, the effluent phosphorus limit remains a mass limit based on the concentration of 0.1 mg/l, unchanged from the 2000 permit.

Comment A18: In the event that EPA and DEP decide, despite the above considerations and information in the record to the contrary, that the final permit should include the phosphorus limits proposed in the draft permit, we request that the final permit (i) contain these limits as seasonal final phosphorus limits (*i.e.*, based on 0.05 mg/l from April to October, and 0.2 mg/l from November to March), (ii) define the April to October final limit as a 60-day rolling average limit, and (iii) include a compliance schedule that contains (A) reasonable interim milestones and reporting requirements for the design and construction of new phosphorus removal processes to meet the final limits, (B) a date by which the Facility must come into compliance with the final limits, and (C) the Facility's existing limits for phosphorus (*i.e.*, a monthly average limit of 0.46 lbs/day and a maximum daily limit of 1.25 lbs/day) as interim phosphorus limits that will be in effect until the final limit compliance date.

Response A18: As noted in Response to A17, the final permit has been revised to establish the more stringent phosphorus limit only for the seasonal period of April 1 to October 31 and this limit is expressed as a 60 day rolling average. The phosphorus limit for the period of November through March will continue to be based on the level of 0.1 mg/l, since this is not the "growing season" for algae. This limit cannot be changed to one based on a concentration of 0.2 mg/l, because this is not allowed by the antibacksliding provision at 40 CFR §122.44(l)(1) and (2). EPA believes that the dissolved phosphorus present in the water column during this period would pass through and not be suspended in the sediments where it could be taken up during the growing season and contribute to algal blooms and exacerbation of the water quality impairment. The compliance schedule in the final permit includes interim milestones and requires compliance with the more stringent effluent phosphorus limit within 60 months after the effective date of the permit.

Comment A19: Alternatively, Veryfine requests that the existing permit limits for phosphorus be retained in the final permit until it can be determined to what degree the extremely low concentrations of phosphorus present in the Facility's effluent under the existing permit (i.e., 0.05-0.1 mg/l) are biologically available. There is information in the literature to support the concept that when an effluent contains very low phosphorus concentrations (such as with this discharge), a component of that minimal phosphorus

remaining in the effluent after treatment may be a highly stable, non-reactive phosphorus that will have no detrimental effect on the environment because it is biologically unavailable. While the ratio of ortho-phosphorus to non-reactive phosphorus in the Facility's existing effluent is unknown, Dufresne-Henry has hypothesized that any remaining phosphorus that is not used up in the Facility's treatment plant – which provides high-rate anaerobic biological treatment, followed by separate aerobic biological treatment, followed by chemical precipitation and filtration – is likely to be highly stable and biologically non-reactive. This hypothesis is supported by the absence of algae or excessive plant growth in the quiescent areas near the Facility's point of effluent discharge leading to Reedy Meadow Brook. We note that EPA itself has acknowledged the current uncertainty in the scientific community regarding this hypothesis, which supports the premise that more study is needed. *See* EPA Nutrient Technical Guidance Manual for Rivers and Streams (July 2000) ("Guidance Manual"), p. 100 ("[T]here is *much less agreement* on whether to use total nutrient concentrations, soluble nutrient concentrations or nutrient concentrations that might produce a given biomass level or an undesirable effect…. [T]otal concentrations *probably* have more general applicability than the soluble fraction.") (emphasis supplied)

Response A19: Setting limits based on total phosphorus is consistent with national guidance and is appropriate in this circumstance. See EPA Nutrient Technical Guidance Manual, Rivers and Streams (July 2000) at pages 31 and 100. With total phosphorus concentrations as low as 0.1 mg/l in the final effluent, almost all of the phosphorus will be in a dissolved form readily available for use by plants (the particulate fraction will have been removed in the course of the multiple treatment processes). "Non-reactive" phosphorus that accumulates in the system may not remain non-reactive indefinitely. It is appropriate for such potentially bioavailable phosphorus to be factored into the effluent limitation, because various forms of phosphorus can transform into more reactive forms relatively quickly. In light of the above, the Agencies do not believe that adjusting the total phosphorus limit to account for a "non-reactive" portion is warranted.

Comment A20: We are also concerned about the appropriateness of decreasing the discharge pH range to an upper limit of 8.3. Past pH discharge performance may not accurately predict future performance, particularly with the anticipated increased use of a public water supply that may adjust pH without consideration of our processes and wastewater discharge constraints. It appears that the current permitted pH range of 6.5 - 9.0 standard units has produced consistent results that have tended more towards the basic then acidic end of the pH scale which is believed to be an environmental benefit to Reedy Meadow Brook. Reducing the upper end of the permitted pH range from 9.0 to 8.3 will force Veryfine to target a lower effluent pH and move further away from the more environmentally desirable basic end of the pH scale to avoid a potential permit violation. On the basis of the foregoing, we request that EPA and DEP retain the existing permit limit for pH (*i.e.*, a range of 6.5 to 9.0) in the new permit.

Response A20: As explained in the fact sheet, the permitted range reflects that which is required by the Massachsuetts SWQS. The 303(d) report cited in Response A12 included pH range violations in the receiving water. In cases where there is sufficient dilution available to the effluent, we have established the upper limit of the pH range to 9.0, as we would not expect instream pH range violations within the mixing zone. In Veryfine's case, there is very little dilution available to the discharge under low flow conditions and we would not expect the instream pH level to quickly be reduced to the upper limit range of 8.3 s.u. if the discharge approaches a pH of 9.0 s.u. Therefore, the permitted range of 6.5 – 8.3 s.u. will remain in the final permit, which is also a State certification requirement.

B) Comments submitted by Cindy Delpapa of the Riverways Program of the Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement:

Comment B1: We urge some consideration be given to amending the SWPPP guidance to specifically reference turf management products and irrigation waters because of the eutrophication problems in the receiving water system and the possibility landscape maintenance duties are contracted to a lawn care company who may not be aware of the SWPPP and its BMP requirements. Lawn management has the potential to add nutrients to the system as well as other deleterious compounds such as herbicides to the runoff.

Response B1: We agree that the permittee should consider how its turf management and landscaping measures may affect the water being discharged to this detention pond. The final permit has added such language to the SWPPP requirement of Section C that will require the permittee to consider these factors and choose land management options which minimize the addition of any pollutants to the detention pond.

Comment B2: At any time did the permittee perform WET testing with more than one species and through this testing was the fathead minnow found to be the more sensitive species? If this is not the history of WET testing for this discharge, how was the decision to use *P. promelas* made? Might *Ceriodaphnia dubia* be a more sensitive species and more appropriate as the test organism?

Response B2: When this permit was last issued in March of 2000, there was a review conducted on previous WET testing results, which had been conducted up to that point with both species, the fathead minnow and the Ceriodaphnia. This review found that the fathead minnow was more sensitive of the two species. Based on that review, the quarterly monitoring was continued, but only with the more sensitive species, the fathead minnow. WET testing for the fathead minnow has been continued for the reissued permit.

Comment B3: The draft permit continues to limit effluent temperature from outfall 001 to 83^0 F correlating with the maximum temperature for a Class B warm water fishery under the Massachusetts State Water Quality Standards. The MA Water quality Standards also have a requirement limiting temperature change to 5^0 F over ambient water temperature, The draft permit does not contain a limitation on the allowable change in temperature of the receiving water due to the discharge or have any requirements to measure in situ water temperatures above and below the effluent discharge point. The temperature data available for Outfall 001 show effluent temperatures were in excess of 60^0 F year round. Since Reedy Meadow Brook is an effluent dominated river, it is unlikely the temperature from the effluent dissipates significantly due to dilution in the Reedy Meadow Brook. It is likely the ambient temperature of Reedy Meadow Brook is raised above 5^0 F by the discharge frequently through the year, even after a reasonable dilution zone, which would be a violation of Massachusetts Water Quality Standards. The permit's temperature limitations should be revisited and a limit in the allowable change in the ambient temperature of 5^0F should be added to comply with State standards for Class B warm water fisheries.

Response B3: Since the permittee heats the process water at different points in its various processes, we believe that it is appropriate to assess whether the instream temperature change, or delta T, of 5^0F is being met. Therefore, the final permit has established a monthly upstream and downstream instream monitoring requirement for temperature. See footnote 4 on Page 3 of the final permit.

Comment B4: The Fact Sheet supplied the instream WQS for copper and the monthly average concentration is 14 ug/l. The permittee reported a range of copper concentrations of 0 to 13 ug/l, with the highest concentration nearly meeting the monthly average WQS. With the designated monitoring schedule of once per month, the 13 ug/l would be the monthly average. This means the data shows the effluent has the potential to exceed the instream WQS. Strong consideration should to given to augmenting the copper monitoring requirement with a concentration monthly average limitation for copper based on the instream WQS concentration provided in the Fact Sheet. This addition is especially pertinent given the addition of the RO system to the facility has the potential to increase the copper levels in the effluent.

Response B4: The EPA and DEP have determined that the monitoring requirement for copper is appropriate at this time, as the range of concentrations for total copper over a recent 2 year period did not exceed what would be the permit limit of 14 ug/l. However, if monitoring under this new permit shows levels at or above this level, we would consider modifying the permit in order to establish a total copper limit.

August 28, 2006